

MISSOURI DEPARTMENT OF CONSERVATION



June/July 2012

# Xplor

adventures in nature



FOR A HOPPING GOOD TIME, CHECK OUT OUR

**FROGGING HOW-TO**



# CONTENTS

## ON THE COVER



**BULLFROG**  
by Noppadol Paothong

### 6 Missouri's Coolest Cats

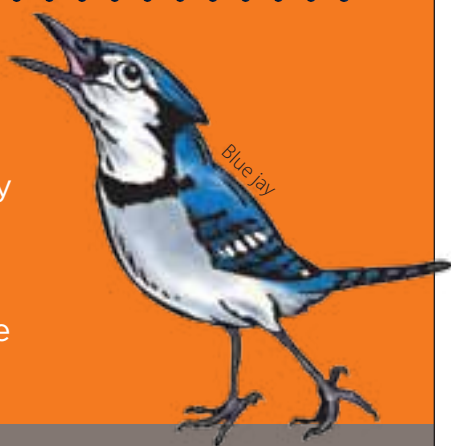
Catfish are pretty cool cats.

### 10 Mud, Fun and Frogs

Few things are more exciting than frogging at night.

## DEPARTMENTS

- 1 What Is It?
- 2 You Discover
- 4 Predator vs. Prey
- 5 How To
- 14 Wild Jobs
- 15 Strange But True
- 16 Xplor More



## ON THE WEB

Visit [xplormo.org](http://xplormo.org) for cool videos, sounds, photos, fun facts and more!



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**We recycle. You can, too!**  
**Share *Xplor* with friends.**

# WHAT IS IT?

**DON'T KNOW?**  
Jump to Page 16 to find out.



- ① I'm a tot with lots of spots.
- ② I have a twin, but we're not close.

- ③ Do you smell something? It's **not** me.
- ④ **Doe** you know where mom went?



# YAU discover

## Bag a BIG BUG.

Grab some friends and a jar. It's time for a backyard big bug hunt! Which of you will find the most colossal creepy-crawly? Maybe you'll score a Hercules beetle. The pointy-headed males are as long as your pointy finger. Pray you find a praying mantis. They can reach the size of your hand. But to score the biggest insect, you'll need to get up before sunrise and check your porch light. If you're lucky, you'll find a saucer-sized cecropia moth fluttering about. Now that's one immense insect!



Hercules beetle

## Snap a PHOTO.

Photographers have a saying: "f8 and be there."

It means to take great photos, don't fret too much about camera settings. Worry instead about being at the right spot at the right time. June 15 is Nature Photography Day, and it's as good a day as any to get up early, grab your camera or smartphone, hit the trail, and *be there*. For photography tips from Nop and Dave, Xplor's dynamic duo of shutterbugs, visit [xplormo.org/node/17801](http://xplormo.org/node/17801).



Raccoon

## Watch FIREFLIES.



Firefly

The twilight twinkle of fireflies is a sure sign summer's on its way. Unfortunately, the blinky-bottomed beetles have vanished from many places. Join Firefly Watch and help scientists figure out why. It's fun and easy. All you have to do is search for fireflies in your yard or a nearby field for 10 minutes each week throughout the summer. Get the details and learn more about fireflies at [mos.org/fireflywatch](http://mos.org/fireflywatch).



popper

## POP A PANFISH.

Fish take a siesta when temperatures soar. A popping bug is the perfect lure to jolt them awake. Fling a popper amongst some lily pads and let it sit for a bit. Then twitch your rod to make the popper POP. If you're lucky, a bass will rocket up from the depths and explode at the surface to engulf your lure like a mini great white shark. All you have to do is hang on.

## Bathe a BIRD.

The beaked ones in your backyard could use a bath. Help 'em out by building a tweetie tub. Set an old cake pan where you can watch it, preferably under a tree so birds have a place to dry off or escape the neighbor's cat. Anchor the pan with a few heavy rocks, and pour in about an inch of water. Voilà! Your sparrow spa is complete—just remember to change the water daily to keep it fresh and mosquito-free.



American robin

## Plan a SUNSET Picnic.

Here's a tip to beat the heat: Wait until sunset to have a picnic. When the sun drops, so does the temperature. As you munch your PB and J, you'll be serenaded by trilling tree frogs, yipping coyotes and whip-poor-wills. You'll see bats flit in the twilight—they have to work for their meals—and watch nighthawks perform death-defying dives. After supper, you can search for shooting stars—or did someone say "s'mores"?



Don't miss the chance to Discover Nature at these fun events.

Go fishing during **FREE-FISHING WEEKEND.** Statewide, June 9–10, 2012. For details, visit [mdc.mo.gov/node/3675](http://mdc.mo.gov/node/3675)



Savor the flavors at a **WILD GAME SAMPLER.** Andy Dalton Outdoor Education Center, Ash Grove, July 7, 8:30 a.m. Register at 417-742-4361

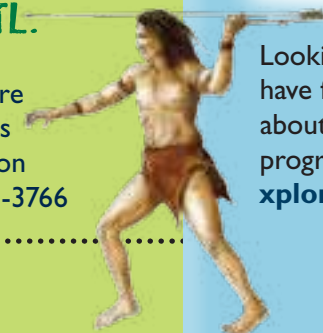


Learn about ticks, mosquitoes and more of **NATURE'S VAMPIRES.** Cape Girardeau Conservation Nature Center, July 12, 2–8 p.m. For information, call 573-290-5218



Can you survive the wild? Find out at **SURVIVOR DAY CAMP.** Columbia Bottom Conservation Area, St. Louis, Ages 9–13. June 25–28, 10 a.m.–2:30 p.m. Register at 314-877-6014

Fling spears as our ancestors did at **PRIMITIVE SKILLS—ATLATL.** Burr Oak Woods Conservation Nature Center, Blue Springs. July 20, 10 a.m.–noon. Register at 816-228-3766



MDC **DISCOVER Nature**

Looking for more ways to have fun outside? Find out about Discover Nature programs in your area at [xplormo.org/node/2616](http://xplormo.org/node/2616).



# PREDATOR

# VS

# PREY

The struggle to survive isn't always a fair fight. Here's what separates nature's winners from its losers.

Illustration by David Besenger

## Injection Protection

A kingsnake doesn't let a snakebite stand in the way of dinner. Kingsnakes are immune to venom from all of Missouri's pit vipers, including copperheads.

## Smelly Tongue

A kingsnake gathers scents on its flicking tongue and uses an organ in its mouth to identify the odors. This organ is so sensitive, a snake can tell whether a smell is stronger on the right or left fork of its tongue.

## Sixth Sense

Pit organs detect heat given off by living things, helping a copperhead "see" prey and predators even in total darkness.

## Venom Injection

Copperheads deploy sharp, hollow fangs to pump venom deep inside prey or predators. The toxic cocktail causes internal bleeding and harms organs.

## Invisible Skin

A copperhead's tan and brown pattern makes it nearly invisible among leaves on the forest floor and helps it hide from predators and prey.

## Killer Coils

Kingsnakes loop around their prey and squeeze, tightening their coils until prey can't breathe. They don't quit squeezing until they feel their victims' hearts stop beating.

**AND THE WINNER IS...**

Large copperheads can hold their own, but little ones are no match against a kingsnake's big squeeze. This copperhead has drawn its final breath.

# HOW TO

## Fillet a FISH

If you want to eat your catch, first you have to clean your catch. The good news is that filleting a bass, crappie or other sunfish is easy. It just takes a little practice.

**Warning:** You'll be working with a sharp knife and a slippery fish, so ask an adult for help!

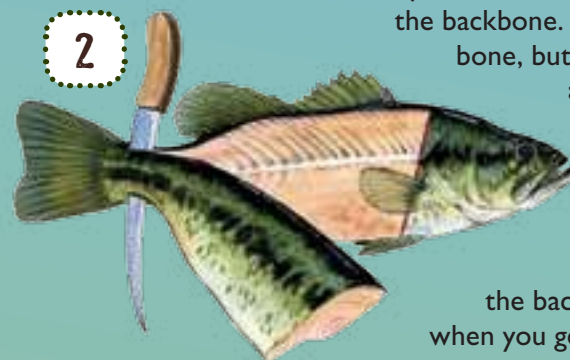
### FILLET YOUR FISH

1



1. Wash the fish to remove as much slime as possible, then lay the fish on its side. Make a vertical cut just behind the gills. Cut gently until you feel the backbone. You don't want to cut through the bone, but you want to get as close to it as possible.

2



2. Hold the fish's head with your free hand. Slide the knife blade with a sawing motion along the backbone toward the tail. Stop slicing when you get half an inch from the tail fin.

3



3. Flip the freshly cut fillet over, then slice it off the flap of skin to which it's attached.

4



4. If there are patches of shiny gray connective tissue, slice them off. Drop the fillet in a bowl of water, flip the fish over, and repeat. In no time, you'll be having fish for dinner!

### GATHER THESE SUPPLIES

- > **An adult**
- > **Long, sharp knife**
- > **Bowl of water**
- > **First-aid kit** (just in case...)



Largemouth bass



# Missouri's Coolest Cats

by Matt Seek • illustrations by David Besenger

With **gaping mouths** surrounded by **fleshy whiskers**, fins armed with **venomous spines**, and **gross, slimy skin**, Hollywood could cast catfish in any scary movie. Despite their appearance, catfish pose no danger to anything bigger than a bread loaf. And when you consider their amazing adaptations and many lovable qualities, you realize these fish are pretty cool cats.

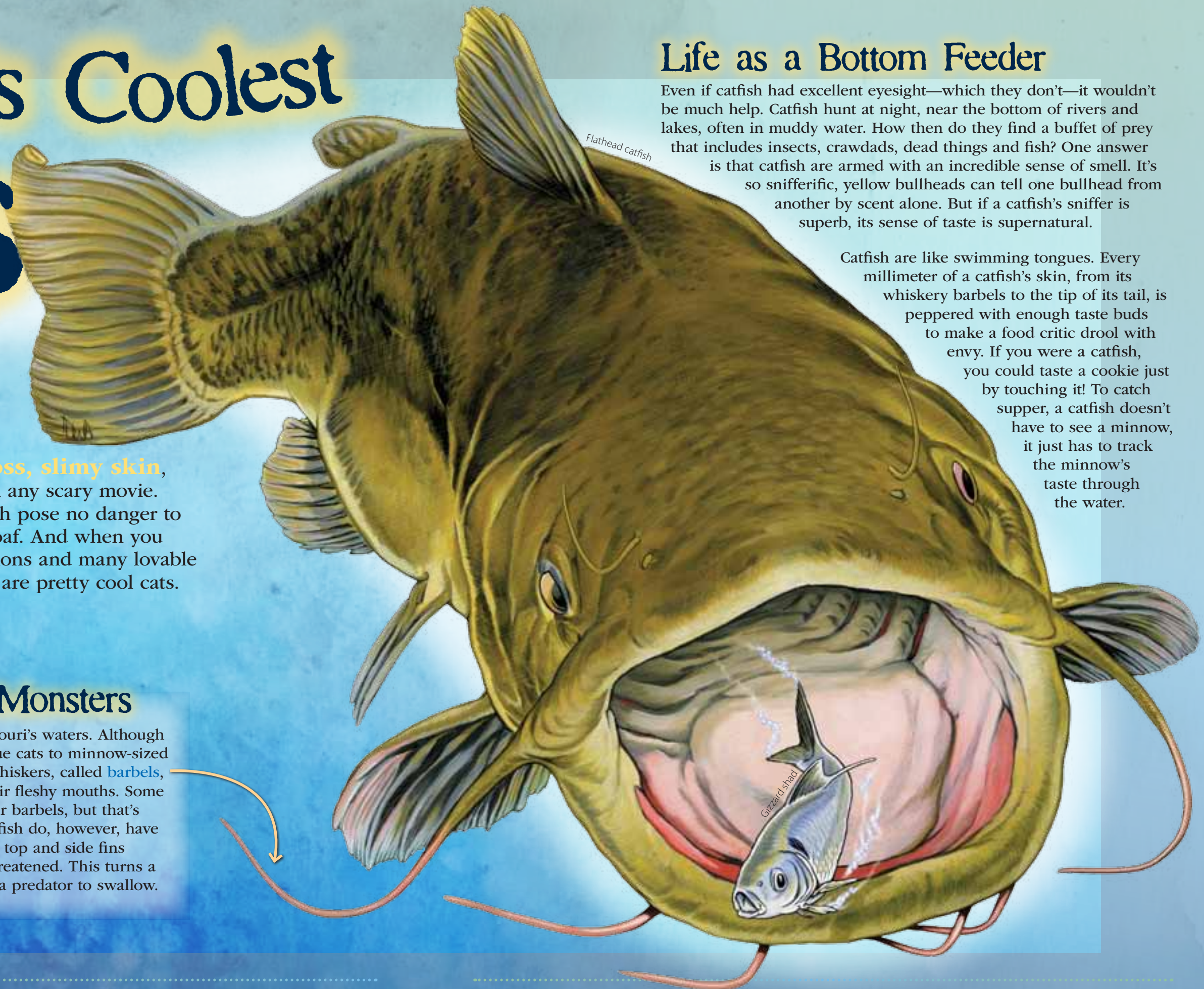
## Here There Be Monsters

Fifteen kinds of catfish cruise Missouri's waters. Although they range from trash-can-sized blue cats to minnow-sized madtoms, all catfish have catlike whiskers, called **barbels**, that wave like tentacles around their fleshy mouths. Some people think catfish sting with their barbels, but that's not true. Barbels are harmless. Catfish do, however, have sharp, venom-laced spines on their top and side fins that they raise like spears when threatened. This turns a catfish into a painful mouthful for a predator to swallow.

## Life as a Bottom Feeder

Even if catfish had excellent eyesight—which they don't—it wouldn't be much help. Catfish hunt at night, near the bottom of rivers and lakes, often in muddy water. How then do they find a buffet of prey that includes insects, crawdads, dead things and fish? One answer is that catfish are armed with an incredible sense of smell. It's so snifferific, yellow bullheads can tell one bullhead from another by scent alone. But if a catfish's sniffer is superb, its sense of taste is supernatural.

Catfish are like swimming tongues. Every millimeter of a catfish's skin, from its whiskery barbels to the tip of its tail, is peppered with enough taste buds to make a food critic drool with envy. If you were a catfish, you could taste a cookie just by touching it! To catch supper, a catfish doesn't have to see a minnow, it just has to track the minnow's taste through the water.







## Protective Parents

Mark Twain—who caught a few Mississippi River catfish in his day—wrote “Put all your eggs in one basket and—watch that basket.” The same could be said for the way catfish raise their babies.

In June and July, the lips of male catfish swell up, signaling the start of nesting season. Males and females use their fins to sweep out a nest in root tangles, beaver burrows and other underwater cavities. Hidden nests are harder

for egg-eating predators to find, but catfish go a fin further. Males—and in some cases, females—guard the eggs. It’s painstaking work. Swarms of sunfish hover around the nest, waiting for a chance to swim in for a snack. And, to make sure the eggs stay clean and get oxygen, catfish must constantly swish their tails over them. All catfish stay with their eggs until they hatch. Bullheads take longer to cut the cord, following their babies around even after they begin swimming.

## Big and Tasty

Catfish are Missourians’ second favorite fish to catch (after bass), and it’s easy to see why. Catfish are found in nearly all of the Show-Me State’s lakes and rivers, and you don’t need fancy fishing gear to catch them. On the line catfish put up a thrilling fight, and on the table they make a tasty meal. Plus, there’s always the chance that down in the deep, just waiting to take your bait, lurks a ginormous catfish.

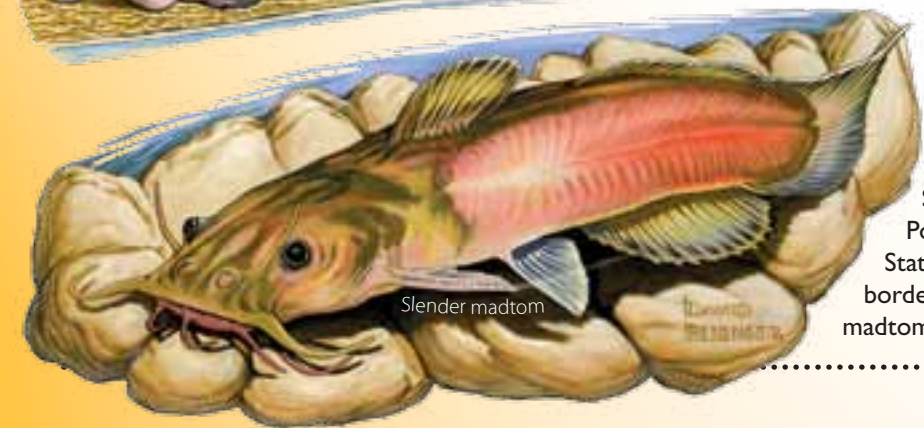
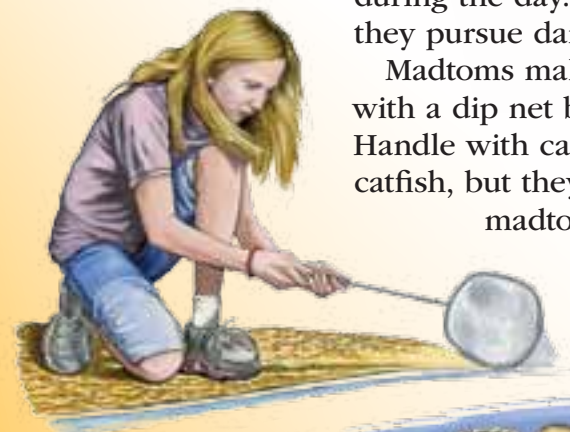
Channel cats can weigh 15 pounds or more, about as much as two jugs of milk. A respectable flathead can match the weight of a 40-pound bag of dog food. But neither fish can put on pounds like a blue cat. These colossal catfish routinely crunch the scales at 50 pounds or more, and Missouri’s state record blue weighed 130 pounds! There may be even bigger blues out there somewhere. In 1879, a 150-pound blue cat was bought at a St. Louis market, and a steamboat captain wrote about a 315-pound blue cat that was caught on the Missouri River just after the Civil War.



## Missouri’s Mini Cats

If channels, flatheads and blues are mega cats, then madtoms are Missouri’s mini cats. None of our nine kinds grow longer than 6 inches. They live in clear streams, hiding under rocks or hugging the bottom of gravel beds during the day. Like large catfish, madtoms come out at night to hunt, but they pursue daintier prey such as mayflies and other stream insects.

Madtoms make interesting aquarium pets. You can collect them at night with a dip net by searching riffles with a flashlight. Remember, though: Handle with care! A madtom’s spines aren’t as large as those on bigger catfish, but they’re sharper and can inflict a painful sting. In an aquarium, madtoms typically hide under rocks with only their whiskered chins sticking out. Drop a bit of food in, though, and they’ll dart out to snatch it, providing a thrilling reminder of why they’re one of Missouri’s coolest cats.



## A Few Rules

If you’re 15 or younger, you don’t need a fishing permit to collect madtoms, but if you’re 16 or older, you do. Don’t collect madtoms from the Spring River in Jasper County, the Black River near Poplar Bluff, the St. Francis River near Sam Baker State Park or the Current River near the Arkansas border. These waters contain Neosho and mountain madtoms, which are endangered and cannot be collected.





# MUD, FUN — and — frogs

by Matt Seek • photos by Dave Stonner

Few things are more exciting than slopping around a muddy pond at night—while most of your friends are sound asleep—in hopes of catching America's largest frog. A bullfrog can weigh more than half a dozen cheeseburgers and grow larger than your dad's hand. Their calls, which sound like enormous, rumbling burps, echo in ponds, rivers, marshes and swamps throughout Missouri. They're fun to catch, and best of all, bullfrogs grow long, meaty legs that when cooked to perfection give your grandma's fried chicken a run for its money.





## FIRST, A FEW RULES

Frogging season runs from sunset on June 30 to midnight on Halloween. Bullfrogs and their smaller cousins, green frogs, are both legal to catch. If you're 15 or younger, you don't need a permit to harvest frogs; if you're 16 or older, you do. You can take home eight frogs each day. The possession limit—how many you can keep in your freezer before having a frog fry—is 16.

## PREPARE TO GET GRUBBY

- You don't need fancy gear for frogging, but one item is essential: a **bright flashlight**. Headlamps are even handier because they leave both hands free.
- Load your light with fresh **batteries** and bring extras in a zip-top bag.
- Pigs wallow in less mud than most frog hunters, so wear **old clothes** your mom can cut into rags when the froggin's done.
- Some froggers wear **rubber boots** or **waders**. If you don't mind wet feet, an old pair of **sneakers** works fine. Lace 'em up tight so mud doesn't suck them off your feet.
- Spray yourself with **insect repellent** to keep squadrons of mosquitoes away.
- Stuff your frogs in a mesh **laundry bag** or an old **pillowcase**. Tie the bag shut to keep the croakers contained.

## CROAKER-CATCHING CONTRAPTIONS

There's no shortage of ways to bag bullfrogs. Some froggers use gigs—long, multi-pronged spears—to harpoon frogs. Once you gig a frog, though, it's yours forever. Releasing an injured frog is against the law. If you want to trade a frog in hand for a meatier one on the next lily pad, don't use a gig. Instead, try a long-handled net or a fishing pole. Bullfrogs eat anything they can cram inside their cavernous mouths. Jiggle any kind of lure—or even a bare hook—in front of a hungry frog, and it will lunge for it. Of all the ways to catch croakers, though, grabbing them with your bare hands is the most fun.

## BARE HANDS AND BRIGHT LIGHTS

How do you catch a one-of-a-kind frog?

*Unique* up on it. Bullfrogs, however, can be as jittery as your little brother after his third can of cola. Sneaking close enough to grab a jumpy hopper takes skill and a little luck.



During summer, frogs cool off at night in mud along the shore. Slowly circle the bank, sweeping your light all around. Look for white chests and glowing pink eyes. If you spot either, keep the light tight on the frog's face. The hypnotized hopper won't be able to see anything and will remain hunkered in place. Creep toward the frog from the front. If it startles, it's liable to jump right toward you, offering a chance for a mad grab. If it doesn't spook, move your hand s-l-o-w-l-y within striking range and ... GRAB IT! When you get your paws on a frog, hang on tight—they're as slippery as a greased water balloon.

After you've bagged eight frogs, it's time to call it a night. Run yourself through a carwash, tip-toe up to bed, and sleep in so you can stay up late tomorrow for another round of mud, fun and frogs.

*For more tips on catching croakers and instructions on cleaning and cooking frogs, hop over to [xplormo.org/node/17800](http://xplormo.org/node/17800).*





# WILD JOBS

WILDLIFE ARTIST  
**MARK RAITHEL**  
TAKES PICTURES  
WITH HIS BRAIN  
AND TURNS THEM  
INTO EYE-POPPING  
PAINTINGS.



**Q: HOW DO YOU MAKE YOUR PAINTINGS LOOK SO GREAT?**

**A:** Before I draw a fox, I study how its bones and muscles fit together, the shape of its nose, how it walks, the color of its eyes. All those details help form a 3-D image in my brain.

**Q: WHY DON'T YOU JUST LOOK AT A PHOTO?**

**A:** Once the fox is in my head, I can draw it from any viewpoint—even one not shown in a photo. I can sit across from you and draw the fox upside down on my side so it's right side up on yours.

**Q: HOW MUCH RESEARCH DO YOU DO?**

**A:** Research takes twice as long as painting. I spend hours outside, reading books and searching the Internet. Sometimes people leave dead animals on my desk.

**Q: YUCK! WHAT'S THAT ALL ABOUT?**

**A:** Folks know I occasionally use real animals for models, so when they find a dead one they save it for me.

**Q: AND YOU APPRECIATE THESE, UH, GIFTS?**

**A:** Absolutely. To be a good wildlife artist, I have to nail the details. A song sparrow better have the same number of tail feathers in my painting as it does in real life.

**Q: WHAT'S THE HARDEST THING TO PAINT?**

**A:** I've been making art since I was 6, so nothing's too tough. Painting every scale on a snake gets pretty boring, though.

**Q: IT SOUNDS AS IF YOU HAVE THE WORLD'S BEST JOB. ANYTHING YOU DON'T LIKE?**

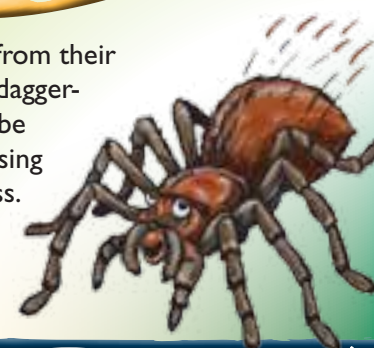
**A:** Cleaning up after a project—and painting snakes.



# STRANGE, but TRUE!

YOUR GUIDE TO ALL THE  
**UNUSUAL, UNIQUE,**  
AND **UNBELIEVABLE**  
STUFF THAT GOES ON IN NATURE

**TARANTULAS** fling fur from their abdomens at attackers. The dagger-sharp hairs pepper a would-be predator's skin and eyes causing pain and temporary blindness.



**GRAY FOXES** often scamper up trees to find food and escape from coyotes. The raccoon dog of Asia is the only other wild canine that climbs trees.

When a predator grabs a **SKINK** by the tail, the little lizard leaves its behind behind. By flexing special muscles, the skink snaps off its tail and squeezes blood vessels shut. While the detached tail twitches, the skink slinks to safety.

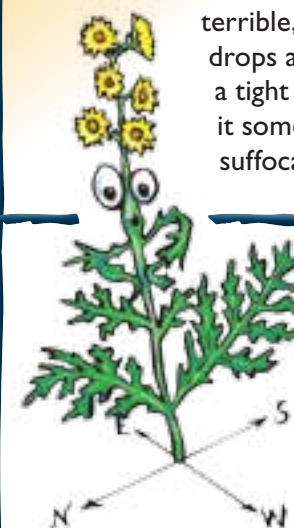
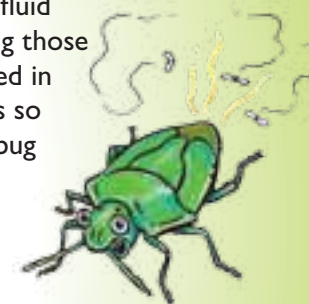


## BLUE JAYS

can whistle a hawk's shrill call. Biologists think they do this to alert animals about nearby raptors or scare birds off nests so the jays can eat the eggs.

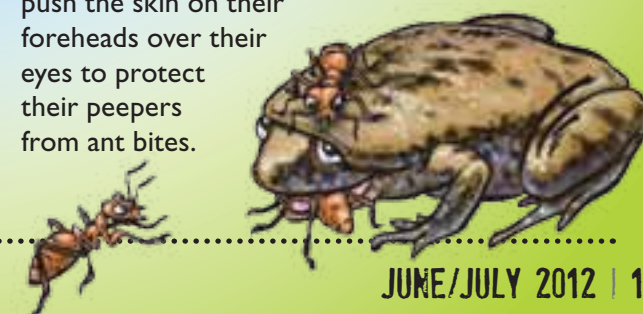


**STINKBUGS** spray a funky fluid from their undersides, leaving those who bother them drenched in stench. The smell is so terrible, if a stinkbug drops a bomb in a tight space, it sometimes suffocates itself.



If you're lost on a prairie, find a **COMPASS PLANT**. The large, bottommost leaves on these sunflower-like plants usually point north and south.

Slimy safety goggles: When dining on ants, **NARROW-MOUTHED TOADS** push the skin on their foreheads over their eyes to protect their peepers from ant bites.





# XPLOR MORE

## RIFFLE RIDDLE

The squiggly little invertebrates (animals without a backbone) living in the riffle of a stream can tell you tons about how clean the water is. Some are so sensitive to pollution they only live in the cleanest streams. Others can handle a little pollution, but not much. And some tolerate lots of pollution and survive in everything from pristine to filthy water.

Finn Rivers, your friendly neighborhood stream biologist, has left you a riddle. To answer it, look at the three invertebrates in each stretch of stream. Using the key, decide whether the three would be found in clean or polluted water. If they're found in clean water, use the letter in the green box to fill in the blank on Page 17. If they're found in polluted water, use the letter in the red box.

KEY					
CANNOT HANDLE POLLUTION	 STONEFLY	 CADDISFLY	 HELLGRAMMITE	 RIFFLE BEETLE	 GILLED SNAIL
SOMEWHAT SENSITIVE TO POLLUTION	 DRAGONFLY LARVA	 SCUD	 CRANE FLY LARVA	 MUSSEL	 CRAYFISH
CAN HANDLE POLLUTION	 HORSEHAIR WORM	 LEECH	 RAT-TAILED MAGGOT	 MIDGE	 POUCH SNAIL

1 **S** **P**

2 **T** **O**

3 **A** **R**

4 **E** **F**

5 **X** **A**

6 **Y** **M**

7 **B** **L**

8 **U** **A**

9 **N** **S**

10 **K** **G**

Golden crayfish

To learn more about streams and how to take care of them, visit [mostreamteam.org](http://mostreamteam.org).

### ANSWER TO WHAT IS?

FROM  
PAGE 1

Baby deer avoid predators by lying quietly, relying on their spots to help them hide in sun-dappled vegetation. Newborn fawns also are nearly odorless, so predators can't sniff them out. Mother deer, called does, usually give birth to twins but stash the siblings in separate locations. If a predator finds one fawn, it won't find the other.



### FINN'S RIDDLE:

Where does a crayfish keep its money?

### ANSWER:

In the ...

1 2 3 4 5 6 7 8 9 10

ANSWER: In the STREAM BANK



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FREE TO MISSOURI HOUSEHOLDS

## CRITTER CORNER Red Fox



Like domesticated puppies, red fox pups love to play. They wrestle, toss feathers around, play tug-of-war with bones, and pounce on anything that moves. When they're 10 weeks old, pups put their play into practice by tagging along with parents to hunt mice, rabbits and insects.